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Jensen, Tim Kåre

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CNS histopathology on bovines with clinical suspicion of BSE in Denmark 2001 to 2011

Tim K. Jensen, Veterinary pathologist, Phd, DVM

The first case of BSE in Denmark was reported in 1992 in an imported Highland Cattle. Since 2000 a total of 15 indigenous BSE cases have been found in cattle. The last case was found in 2009 in a normally slaughtered 14 years old dairy cow.

The aim of this study was to summarize the histopathological findings in 195 bovines with clinical suspicion of transmissible spongiform encephalopathy in Denmark 2001 to 2011.

The annual number of suspicions peaked in 2001 with 71 cases, followed by a gradual decrease until 2005. From 2006 and on-wards a mean number of 5 cases have been submitted. In the same period the total bovine population has decreased from 1.8 mil to 1.4 mil.

Two cases of BSE were diagnosed as listed in Table 1. The most prevalent differential diagnosis was listeriosis (n=106), characterized by multifocal, necrotizing, non-suppurative encephalitis confined to the brain stem region. Ten cases showed encephalitis characterized by low grade multifocal, non-suppurative cuffings, mainly in cerebrum and brain stem. Non specific etiology was suspected. In another twenty cases a specific diagnose was made, Table 1 and figures. Forty seven (24%) of the cases revealed no significant lesions, whereas seven cases were unsuitable due to autolysis.

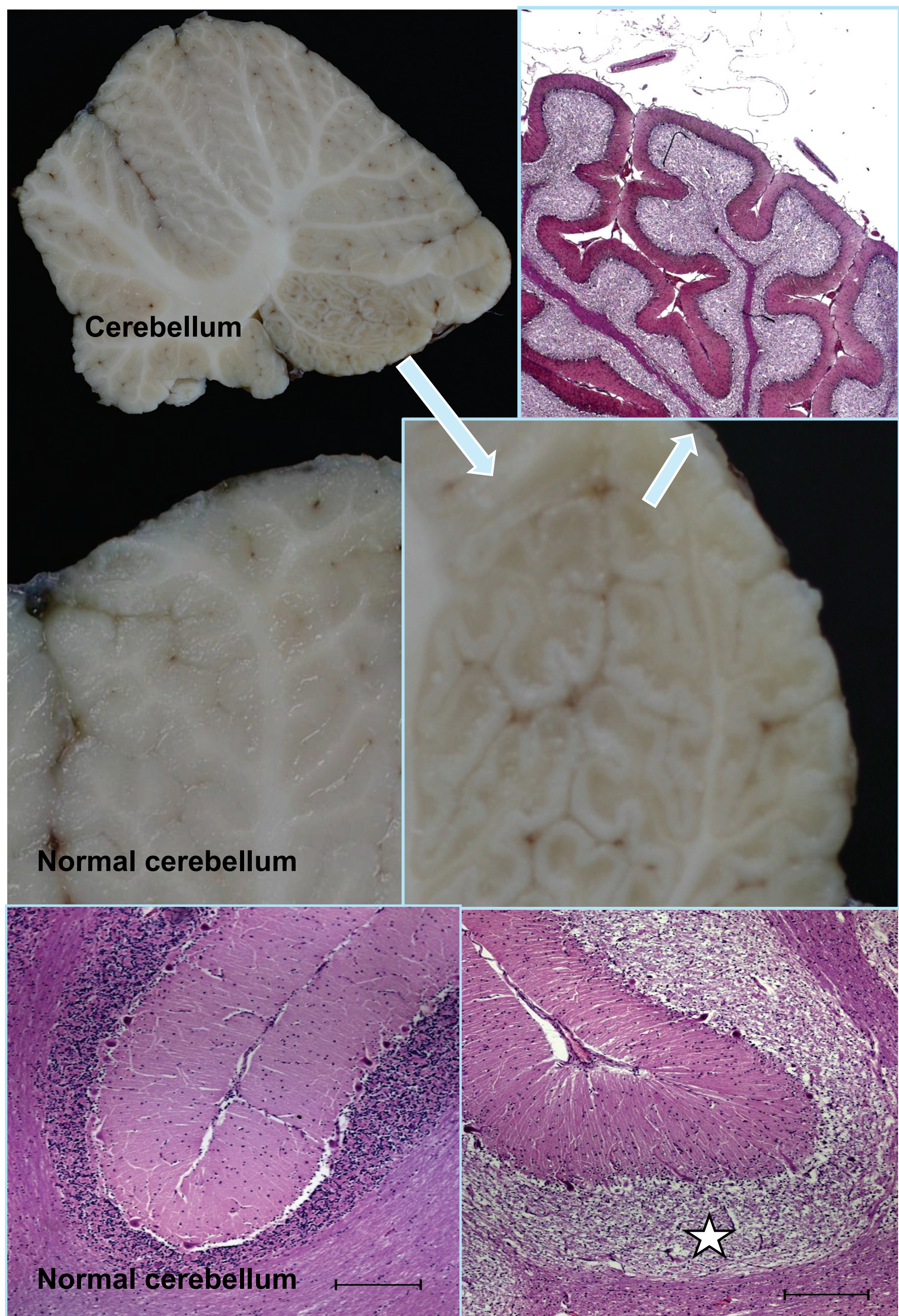


Fig. 2. Cerebellar degeneration and necrosis. Histopathologically characterized by severe loss / depletion of cells in the granule cell layer (★). Possibly due to displacement and compression caused by increased intracranial pressure.

During 2001 to 2011 a total of 195 bovines were submitted to the institute with clinical suspicion of having BSE. In two cases BSE was confirmed. The most common differential diagnosis was listeriosis, found in 54% of the cases. Listeriosis was characterized by multifocal, necrotizing, non-suppurative encephalitis confined to the brainstem region..



Diagnosis \ Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001 to 2011
Listeriosis	31	20	29	10	5	3	4	1			3	106
Lesions not found	25	9	7	2	2		1	1				47
Encephalitis	6	2	1	1								10
Unsuitable/autolysis	2	1		2	1					1		7
Hydrocephalus	1				1	1	1	1				5
Intracranial oedema	1			1	2							4
Pituitary abscess	1	1		1								3
Ependymoma		1									1	2
Hepatic spongiform encephalopathy		1		1								2
Subdural haemorrhage	2											2
BSE	1		1									2
Malignant adenoma originating from the pineal gland									1			1
Cerebellar necrosis and degeneration											1	1
Meningial lymphosarcoma		1										1
Cerebral malacia		1										1
Neural storage disease	1											1
Number of submissions	71	37	38	18	11	4	6	3	1	1	5	195

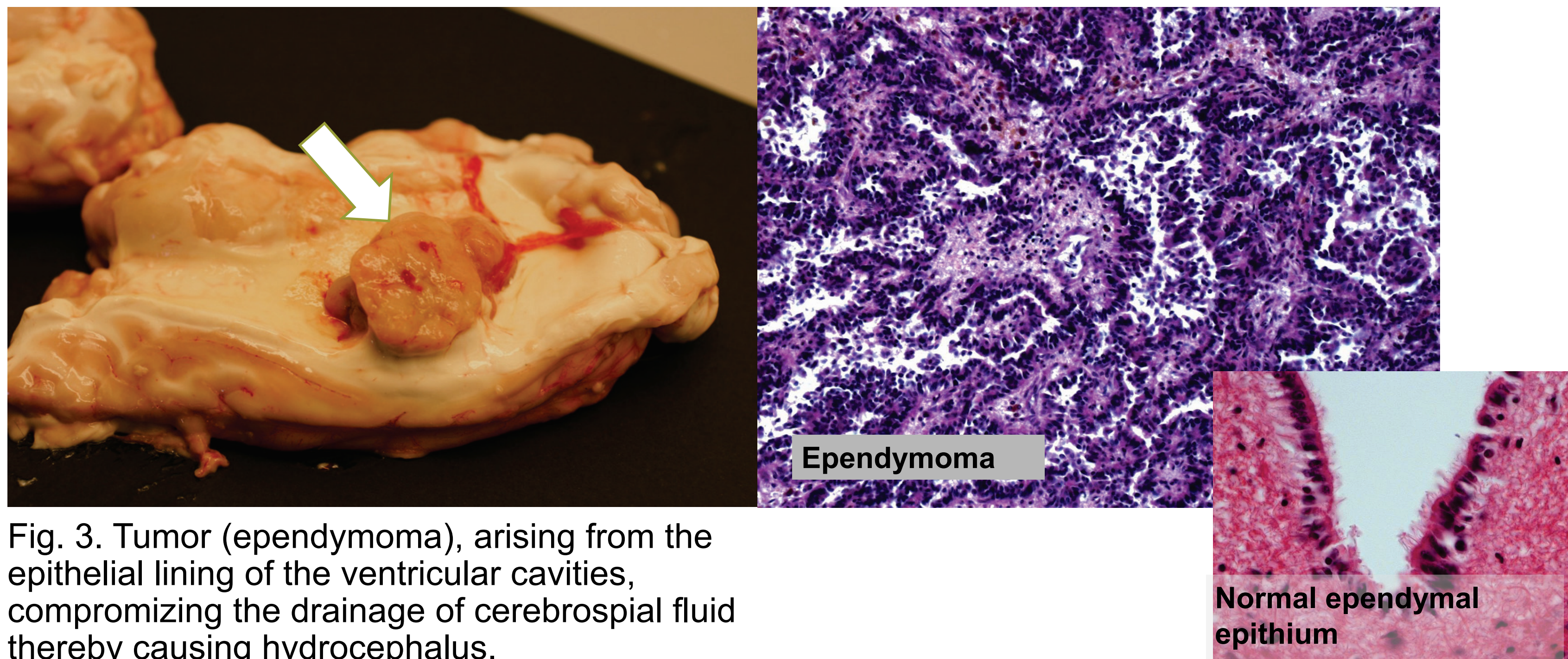


Fig. 3. Tumor (ependymoma), arising from the epithelial lining of the ventricular cavities, compromising the drainage of cerebrospial fluid thereby causing hydrocephalus.